

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A substrate support jig for removably holding a substrate when mounting electronic components on the substrate, the substrate support jig comprising:

a base member having a first surface and a second surface; and

an adhesive material being made of a material able to adhere to the substrate, the adhesive material being provided on the first surface of the base member,

wherein an adhesive region and a non-adhesive region are provided on the first surface of the base member, the non-adhesive region being provided in the adhesive region,

wherein the non-adhesive region is enclosed by a region, other than the non-adhesive region, of the adhesive region,

wherein the adhesive material is provided in the region, other than the non-adhesive region, of the adhesive region, and

wherein the base member is provided with through holes penetrating through the non-adhesive region from the first surface of the base member to the second surface of the base member for removing the substrate from the base member.

2-3. (Cancelled)

4. (Previously Presented) The substrate support jig according to claim 1,
wherein the substrate comprises lead sections and a non-lead section,
wherein the lead sections are for connecting with external terminals,
wherein the non-lead section is a section of the substrate other than the lead sections,

and

wherein the adhesive material is formed in a shape such that the adhesive material is able to adhere to the non-lead section of the substrate.

5. (Cancelled)

6. (Previously Presented) The substrate support jig according to claim 1, wherein a distance between the first surface of the base member and the second surface of the base member is from a range of 2 mm to 4 mm.

7. (Previously Presented) The substrate support jig according to claim 25,

wherein a depth of the depression is from a range of 0.1 mm to 0.5 mm.

8. (Previously Presented) The substrate support jig according to claim 1, wherein a hardness of the adhesive material is from a range of 20 to 50 Hs.

9. (Previously Presented) The substrate support jig according to claim 1, wherein the adhesive material has a heat resistance that withstands temperatures exceeding a heating temperature at which a bonding material melts, the bonding material bonding the electronic components to the substrate.

10. (Previously Presented) The substrate support jig according to claim 9, wherein the temperatures exceeding the heating temperature are 185°C and higher.

11. (Previously Presented) The substrate support jig according to claim 1, wherein the adhesive material has abrasion resistance.

12. (Previously Presented) The substrate support jig according to claim 1, wherein the base member has positioning marks provided thereon for positioning the substrate.

13. (Withdrawn) A circuit board production apparatus for producing an electronic circuit board by mounting electronic components on a substrate, the apparatus comprising:

an adhesion apparatus for pressing the substrate against a substrate support jig for temporary adhesion;

a bonding-material supply apparatus for applying a bonding material for bonding the electronic components to the temporarily adhered substrate;

a component mounting apparatus for mounting the electronic components to the applied bonding material;

a heating apparatus for heating the bonding material having the electronic components mounted thereto, to bond the electronic components to the substrate; and

a substrate removing apparatus for peeling the substrate having the electronic components bonded thereto off the substrate support jig, wherein the substrate support jig includes:

a base member having a first surface and a second surface; and
an adhesive material being made of a material able to adhere to the substrate, the
adhesive material being provided on the first surface of the base member,
wherein an adhesive region and a non-adhesive region are provided on the first surface
of the base member, the non-adhesive region being provided in the adhesive region,
wherein the non-adhesive region is enclosed by a region, other than the non-adhesive
region, of the adhesive region,
wherein the adhesive material is provided in the region, other than the non-adhesive
region, of the adhesive region, and
wherein the base member is provided with through holes penetrating through the non-
adhesive region from the first surface of the base member to the second surface of the base
member for removing the substrate from the base member.

14. (Withdrawn) The circuit board production apparatus according to claim 13,
wherein the heating apparatus includes a heating table for heating the base member by
bringing the heating table into contact with the second surface.

15. (Withdrawn) The circuit board production apparatus according to claim 13,
wherein
the base member has positioning marks provided thereon for positioning, and the
substrate has substrate-side marks provided thereon for positioning, and
the adhesion apparatus includes:

a holding member for sucking and holding an entire surface or substantially entire surface of the substrate;

a holding and pressing apparatus for pressing the sucked and held substrate against the adhesive region for temporary adhesion;

a recognition apparatus for recognizing the positioning marks and the substrate-side marks; and

a control apparatus for controlling an operation of the holding and pressing apparatus based on a result of the recognition.

16. (Withdrawn) The circuit board production apparatus according to claim 13, wherein

the bonding-material supply apparatus includes:

a jig holding apparatus for holding and positioning the substrate support jig having the substrate temporarily adhered thereto; and

an application apparatus for placing a screen mask on the positioned substrate and applying the bonding material to the positioned substrate through the screen mask.

17. (Withdrawn) The circuit board production apparatus according to claim 13, wherein

the component mounting apparatus includes:

a component supply apparatus for supplying the electronic components to be mounted on the temporary adhered substrate; and

a component holding apparatus for holding and mounting the supplied electronic components on the substrate.

18. (Withdrawn) The circuit board production apparatus according to claim 13, wherein

the substrate removing apparatus includes:

removing pins placed so as to go into the through holes from the second surface and protrude from the first surface; and

a peeling driving apparatus for moving the removing pins through the through holes relatively to the substrate support jig.

19. (Withdrawn) The circuit board production apparatus according to claim 18, wherein

the substrate removing apparatus further includes:

a substrate holding apparatus for holding the substrate having been peeled off the substrate support jig by movement of the removing pins.

20. (Withdrawn) The circuit board production apparatus according to claim 18, wherein the removing pins are placed in an area corresponding to a no-component mounted portion of the temporarily adhered substrate where the electronic components are not being mounted.

21. (Withdrawn) The circuit board production apparatus according to claim 13,

further comprising:

a cleaning apparatus for cleaning the adhesive material of the substrate support jig off which the substrate has been peeled.

22. (Withdrawn) The circuit board production apparatus according to claim 21, wherein

the cleaning apparatus includes:

an adhesive-region cleaning cloth for removing dust from the adhesive region; and
a moving apparatus for moving the cleaning cloth relatively to the substrate support jig while bringing the cleaning cloth into contact with the adhesive material.

23. (Withdrawn) An adhesion apparatus for allowing a substrate to temporarily adhere to a substrate support jig, the adhesion apparatus comprising:

a holding member for sucking and holding an entire surface or substantially entire surface of the substrate;
a holding and pressing apparatus for pressing the held substrate against the substrate support jig for temporary adhesion;
a recognition apparatus for recognizing positioning marks and substrate-side marks when the holding and pressing apparatus allows the substrate to temporarily adhere to the base member, the positioning marks being provided on the substrate support jig and used to position the substrate, and the substrate-side marks being provided on the substrate and used to position the substrate; and

a control apparatus for controlling an operation of the holding and pressing apparatus based on a result of the recognition, wherein

the substrate support jig includes:

a base member having a first surface and a second surface; and

an adhesive material being made of a material able to adhere to the substrate, the adhesive material being provided on the first surface of the base member,

wherein an adhesive region and a non-adhesive region are provided on the first surface of the base member, the non-adhesive region being provided in the adhesive region,

wherein the non-adhesive region is enclosed by a region, other than the non-adhesive region, of the adhesive region,

wherein the adhesive material is provided in the region, other than the non-adhesive region, of the adhesive region,

wherein the base member is provided with through holes penetrating through the non-adhesive region from the first surface of the base member to the second surface of the base member for removing the substrate from the base member, and

wherein the base member has positioning marks provided thereon for positioning, and the substrate has substrate-side marks provided thereon for positioning.

24. (Withdrawn) A circuit board production apparatus for producing an electronic circuit board by mounting electronic components on a substrate, the apparatus comprising:
an adhesion apparatus for allowing the substrate to temporarily adhere to a substrate support jig; and

a substrate removing apparatus for peeling the temporarily adhered substrate off the substrate support jig, wherein

the substrate support jig includes:

a base member having a first surface and a second surface; and

an adhesive material being made of a material able to adhere to the substrate, the adhesive material being provided on the first surface of the base member,

wherein an adhesive region and a non-adhesive region are provided on the first surface of the base member, the non-adhesive region being provided in the adhesive region,

wherein the non-adhesive region is enclosed by a region, other than the non-adhesive region, of the adhesive region,

wherein the adhesive material is provided in the region, other than the non-adhesive region, of the adhesive region, and

wherein the base member is provided with through holes penetrating through the non-adhesive region from the first surface of the base member to the second surface of the base member for removing the substrate from the base member, and

the substrate removing apparatus includes:

removing pins placed so as to go into the through holes from the second surface;

a peeling driving apparatus for moving the removing pins through the through holes relatively to the substrate support jig so as to push the temporarily adhered substrate; and

a substrate holding apparatus for holding the substrate having been peeled off the substrate support jig by movement of the removing pins.

25. (Previously Presented) The substrate support jig according to claim 1, wherein the region, other than the non-adhesive region, of the adhesive region, is formed in a depression of the base member, and wherein the adhesive material is provided inside of the depression.

26. (Previously Presented) The substrate support jig according to claim 1, wherein the non-adhesive region is provided in the adhesive region in an island-like manner.

27. (Previously Presented) The substrate support jig according to claim 1, wherein the adhesive material has a thickness from a range of 0.1 mm to 0.6 mm

28. (Previously Presented) The substrate support jig according to claim 1, wherein the adhesive material protrudes above the non-adhesive region by approximately 0.1 mm.

29. (New) The substrate support jig according to claim 12, wherein the positioning marks are disposed in at least a first corner region and a second corner region of the base member, and wherein the first and second corner regions of the base member are located outside of a region of the base member on which the substrate is disposed.